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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,221	07/28/2003	Peter Finamore	16588-US	5453

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EXAMINER	
NOLAN, SANDRA M	

ART UNIT	PAPER NUMBER
1772	

DATE MAILED: 09/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/628,221	FINAMORE, PETER
	Examiner	Art Unit
	Sandra M. Nolan	1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 6-10* is/are rejected.

7)☒ Claim(s) *5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims

1. Claims 1-0 are pending.

Allowable Subject Matter

2. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record fails to teach or suggest hydrogen storage containers having foamed carbon coatings on the inner surfaces of their outer shells.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-4 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ovshinsky et al (US 6,627,148) in view of Stetson et al (US 6,425,251).

Ovshinsky teaches hydrogen storage vessels that employ magnesium hydrides (abstract; col. 14, line 13). The vessels are made of stainless steel (col. 14, line 15-18) and have inlet and outlet valves to introduce or evacuate hydrogen (col. 14, lines 24-28). The hydrogen can be used to power vehicles (col. 3, lines 57-60).

Vessel is deemed to be a container.

Ovshinsky fails to teach carbon foam liners.

Stetson teaches a hydride storage unit having an outer shell **1** immediately adjacent a helically wound mass of alloy **3** and graphite foam **4** (Figure 4; col. 7, line 52 through col. 8, line 4). The foam is thermally conductive (col. 8, line 1).

Graphite is a well-known form of carbon.

Stetson's alloy/foam mass abuts the storage unit shell **1** and is deemed to form a liner therefor.

The references are analogous because they both deal with hydrogen storage.

It would have been obvious to one having ordinary skill in the art at the time that the invention was made to employ the foam-containing liner of Stetson in the containers of Ovshinsky in order to facilitate the conduction of heat to/from the container.

The motivation to employ the foam-containing liner of Stetson in the containers of Ovshinsky is found at col. 8, line 1 of Stetson, where the thermal conductivity of the foam is taught.

It is deemed desirable to conduct heat to/from hydride storage containers in view of the exothermic nature of the hydride-forming reaction and the endothermic nature of the hydrogen forming reaction.

The protective and charging/reading effects of claims 7 and 8 are results that would be expected flow from the use of the liners in the containers suggested by the combined references.

The use of the containers suggested by the combination of Ovshinsky and Stetson in fuel cells or internal combustion engines, per claim 9, is a matter of intended use and does not render the containers patentable over those suggested by the references.

Nonetheless, Ovshinsky suggests use of its containers in systems to power vehicles and both fuel cells and internal combustion engines are well known means to power vehicles.

6. Claims 6 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ovshinsky and Stetson as applied to claims 1-4 and 7-9 above, and further in view of Ramachandran et al (US 2004/0035401A1, filed 26 August 2002).

Ovshinsky and Stetson are discussed above. They fail to teach fins.

Ramachandran teaches the use of fins 53 in hydride storage units to provide for heat transfer between the storage units and the surroundings (par. 0046).

The references are analogous because they all deal with hydrogen storage.

It would have been obvious to one having ordinary skill in the art at the time of the invention to employ the fins of Ramachandran in the containers suggested by the combination of Ovshinsky and Stetson in order to facilitate heat transfer.

The motivation to employ the fins of Ramachandran in the containers suggested by the combination of Ovshinsky and Stetson is found in par. 0046 of Ramachandran, where the use of fins in hydride storage units to provide for heat transfer between the storage units and the surroundings is taught.

It is deemed desirable to facilitate heat transfer out of hydrogen storage units in order to prevent heat-induced deterioration, which would harm the units.

Conclusion

Any inquiry concerning this communication should be addressed to Sandra M. Nolan, at telephone number 571/272-1495. She can normally be reached Monday through Thursday, from 6:30 am to 4:00 pm, Eastern Time.

If attempts to reach the examiner are unsuccessful, her supervisor, Harold Pyon, can be reached at 571/272-1498.

The fax number for patent application documents is 703/872-9306.

S. M. Nolan
Primary Examiner
Technology Center 1700

10628221(20040909)